MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION
PUBLISHED MONTHLY

Volume III St. Augustine and Jacksonville, Florida, May, 1917 Number 11

PRESIDENT E. W. WARREN'S ADDRESS.*

Gentlemen: I wish to thank you all for my election a year ago to the presidency of our Association. It is an honor I did not allow myself to contemplate when I first crossed your threshold fifteen years ago. Little did I dream then that my services would ever be thought of in this capacity. I attended my first meeting of the Association at St. Augustine soon after coming to the State and since that time have missed only two or three meetings, having always looked forward to them with the keenest anticipation. To get entirely away from my patients with their cares and anxieties and relax in friendly intercourse with my neighbors in the profession has been among my greatest pleasures.

In selecting a subject to discuss with you this evening, it has occurred to me to point out some of the ways the Association might increase its usefulness, and more than ever justify its existence.

From my first observations of the activities of the Association I have felt that we have not been alive to our opportunities for the advancement of the best interests of the profession and of our patients. As an organization I do not believe we have asserted ourselves to the fullest extent. Some of my predecessors have caught the vision, but have been handicapped by the surrounding conditions from doing as much as they saw the need of doing. There are numerous things demanding attention by the Association besides our annual meeting and its scientific program. Many medical associations have become great because of the work they have undertaken and carried to success. The American Medical Association, which is the greatest aggregation of medical men in the world, has attained its present proportions because of the courage of its leaders in the work they have undertaken and accomplished. No institution in America outside of the church has done more for the good of the people. Its greatest tasks and most splendid accomplishments have been along the line of making better doctors and of improving the health of the nation. I know of no other institution or organization that has taken as its leading line of work that of reducing the possible earnings of its membership. Its every movement has been of a protecting and benevolent nature. It has carried out more closely than any other institution President Wilson's humanitarian principles. The American Medical Association has provided the machinery for many different kinds of work through committees or councils and the membership of those councils is selected with a view to the special work in hand. They have been with exceedingly few exceptions the statesmen of the profession, men who would have added luster to any line of life's work they may have undertaken. The influence of these men has been felt both in the nation as a whole and in the States. It has influenced the medical services of the army and navy for the betterment of those branches of the government.

Many of the State associations have followed the inspiration and have proudly arisen to the occasion. The associations of New York, Pennsylvania, Illinois, California and many other States and those of the cities of New York and Chicago have many

*Delivered before the forty-fourth annual meeting of the Florida Medical Association, held at Atlantic Beach, May 18, 19, 1917.

victories to their credit. They have seen the need of certain work and have recognized that no one else could do it for them. Had I the time and opportunities, I would like to detail some of the splendid things that have been accomplished by these organizations.

Probably the most mandatory call just now on the Florida Medical Association is for a proper working out of a legislative program for better regulating the practice of medicine in the State. Medical legislation is almost a science within itself in its widest application. It covers almost an unlimited number of subjects. Broadly speaking, it may be divided into public health laws and medical practice acts. Public health laws have for their purpose the conservation of the public health, the collection and dissemination of health educational data and information and the collection of vital statistics. This is accomplished through health boards or bureaus and their immediate function is to protect the people against communicable disease and after that comes the collecting of vital statistics, mortality and morbidity reports, health educational work, sanitary engineering, milk commissions, supervision of medical examination of school children, the transportation and disposal of dead bodies and such other duties as may become apparent from time to time. Medical practice acts have for their purpose the regulation of those who treat the sick individually. Unfortunately our educational system has given us as a whole practically no knowledge of ourselves from a medical standpoint. Beyond purgatives and poultices the average individual knows nothing. Almost every one has a working knowledge of law and most of us constitute ourselves authorities on religion, but in physiology and pathology we are silent. The charlatan coins this ignorance into wealth for himself and you all will agree with me that without restrictive legislation his activities would recognize no limitations. The people delegate to legislatures the power to pass laws protecting them against this result of their ignorance, but there is no subject ever coming before legislatures about which there is more controversy and more uncertainty in the mind of the legislator. This subject has had considerable work done at the hands of our Association in the past few years and will eventually be satisfactorily worked out. At present we have about the poorest medical practice act of any State in the country and to get better laws on the subject will take the cooperation of the whole profession. We must take into consideration that a comprehensive medical practice act that will protect the people against the ever-present faker and charlatan will always have the bitterest antagonism of those people. We have also to remember that those people are very capable in interpreting the uncertainty of the legislature and make a fight that it will take our very best resources to overcome. Many men already licensed to practice medicine find in the bill usually something that is inimical to their special methods of practice and fight the bill, which ought to have their support. In order to succeed we must be able to give the legislature good and sufficient reasons for our attitude.

Another one of our duties is that of informing the people of the pitfalls prepared for them by the shrewd and designing advertisers of cures for the various diseases afflicting humanity. Any statement by the man with something to sell will be believed by the majority of those who hear or read it. The more flagrant and really impossible the promise made the more anxiously the people accept it. The sick person wants promises to cure. He assumes that these promises arise from sincerity. We doctors are always wondering at the obtuseness of the public in buying patent medicines and believing in them, but how much have we done to enlighten them? We sit snugly in our offices and read exposures of patent medicines and appliances, forgetting all along that the public never sees those articles. They are rarely ever published except

in medical journals and a few courageous magazines. We make no move to furnish that information to our patients. On the other hand we are ready to scold when we find them calling for the usual home remedies at the cross-roads grocery store. We read eagerly every word of evidence for and against in a trial in Chicago a few months ago in a suit for damage concerning a famous old fraud well known to the women of the country. We expected the sale of this stuff to stop, little thinking that the only information the public ever received of that famous trial was furnished in garbled form by the manufacturers of the medicine. We dismiss the subject usually by saying "the people like to be fooled." I take issue with that statement emphatically. The people are searching for the truth and it is for us to furnish it to them in a convincing manner. Do we like to admit that the man with total disregard for truth and honesty is more convincing than we could be with equal effort. If a method can be worked out and adopted whereby this information can be furnished to the public we will have done a great service.

The duty the medical profession is performing most righteously is that to our soldiers. I am tempted to say we are fighting the battles of the world today. We are being called upon to protect our soldiers from enemies more insidious and more to be dreaded than those in the trenches of the opposing army. Congress recognized our value to the government recently when more doctors per capita were provided for the government services than ever before. It was realized that the effective soldier is the healthy, strong fellow free from the unfortunate conditions that prevailed in some instances in the Spanish-American war. Who among us cannot recall the number of boys from our homes that were brought back in coffins with the report that they died of typhoid fever. The medical men are the beginning and the end, practically speaking, of the soldier. We first make the physical examination that determines his fitness to become a soldier, we shield him from every possible danger to his health and except in actual battle we are with him at his death.

We have recently been instrumental in adding a new element of protection to the soldier, when we convinced the War Department that continence in the soldier is compatible with good health and that good morals are as desirable in the government as elsewhere. As a result an order has been issued, I am informed, creating a zone around camp sites designed to protect the soldiers from the most insidious and inexcusable of all the contagious diseases. This corrects the former absurd situation whereby we sought men for the army or navy who were not only free of these diseases but of all other diseases or physical deformities or weaknesses and then immediately after enlistment withdrew every precaution against the contraction of veneral disease while continuing to offer him protection against all others. No one knows so well as the physician the unavoidable and unfortunate train of distressing sequelæ of gonorrhœa and syphilis, and still we have done little to quarantine against either of them. We look with horror on smallpox, but with our present methods of control the harm it does is not to be compared with that of syphilis.

Another subject of prime importance is now demanding our most thoughtful consideration, that of compulsory health legislation. The medical profession of Great Britain was unprepared for this innovation and was not well pleased with the treatment accorded them in the bill passed by parliament. Unless we study the subject and learn just what our dues are and demand them, no one else will or can. The subject is under consideration in some States now and will before many years be before our legislature. In New York the Mills bill has been up for consideration twice. This bill seeks to commit the State of New York to this plan, but has not made any headway yet. A satisfactory working basis has not yet been

reached. Compulsory health laws bring up one of the most complex problems that has ever come up from our viewpoint. It readjusts our entire relationship to the public and if carefully worked out with fairness to all, it has elements of good in it, not only to the people but to the profession. But I warn you now we will have to be on our guard if we are not to be imposed upon. It is born of an attempt by society to care for its destitute sick instead of leaving it all to the generosity of the physicians. There is no attempt to deny that our profession is unduly burdened in taking care of the charity practice of the world. It has by common consent been thrust upon us by society. The municipality will pay to the civil engineer the splendid compensation demanded by his skill, while it pays its city physician a mere pittance. City authorities will employ an attorney for a special work and pay him an adequate fee, the larger the fee the more cheerfully it is paid provided he is a high-grade lawyer, but it will call a physician in an emergency and instruct him to make his charge at pauper rates. I have found city and county governments among the most insistent in their demands on the physician's charity.

ORIGINAL ARTICLES

BACTERIA IN THE ECONOMY OF NATURE.*

HIRAM BYRD, M. D.,

Princeton, Fla.

Mr. President, Ladies and Gentlemen:

Seven years ago I had the honor of delivering the annual oration before this body—an honor great in itself, but doubly great when it comes a second time.

On that occasion I gave an "Appreciation of Louis Pasteur," the man to whom you do homage when you "pasteurize" your baby's milk; the man for whom you offer devout thanks when you give your child the Pasteur treatment; the man who discovered that pebrine and flacherie among silk worms were diseases due to living organisms, that anthrax and chicken cholera and swine erysipelas were biological entities—in fine the man who made modern medicine possible.

But the one great fundamental thing, the one undying heritage that he left the world, and which has meant more than Pasteur vaccination, more than diphtheria antitoxin, was his method of research, his scientific precision, his proof of proof. In a word he taught Science to be scientific. Up to that time little proof was asked beyond the master's word—"He himself said so," *ipse dixit,* was all-sufficient.

Pasteur did not create germs—he didn't even discover them. They had been used before he was born to demonstrate the possibilities of the microscope. But he did turn aside to behold the burning bush. It was he, the master explorer, who said dig here and you will find gold. It was he who made bacteriology.

It would be foreign to the subject I have chosen to deal with these organisms other than in the most general way, and in terms of their most fundamental attributes. And of these, perhaps the most astounding, at least to the novice, are their infinite smallness, and their infinitude of numbers. The geologist deals with unthinkable stretches of time. The crust of the earth he tells us is anywhere from twenty to two hundred and forty million years old. If we endeavor to grasp the meaning of that we think back to the time when America was discovered, some four hundred years ago, and back to the birth of Christ, and back and back as far as we have any authentic records—back to the civilization of the valleys of the Nile and the Euphrates, and still on back and back till history is lost in myth, till the mind refuses to go further, and still we have not covered

*Oration delivered before the forty-fourth annual meeting of the Florida Medical Association, at Atlantic Beach, May 18, 19, 1917.

the newest phase of the last geological age.

The astronomer has, if possible, a still more wonderful tale. He tells us of the great distances that traverse the limitless sky. Tells us that light moves at the astounding rate of 180,000 miles a second, and with the next breath tells us that our nearest fixed star is so far away that its light is three years reaching us! Tells us of a realm where distances are so great that the foot rule used for measuring them is the distance that light travels in a year. Who can think in terms of such freedom of space!

But if the geologist and the astronomer have wonderful tales, no less so is the story the bacteriologist has to tell us of the world of little things. He tells us of living things that are as small as celestial distances are great. Tells us of plants that under the microscope look like little lead pencils cut in inch lengths, and which are so minute that it takes 10,000 of them laid end to end, 80,000 of them side by side to measure an inch. Tells us of organisms so small that a mass the size of a drop of water would give every man, woman and child of every race in the world one plant each, and then have some to spare. It is absolutely unthinkable, is such littleness of stature, such infinitude of numbers. And yet, it is these very characteristics, together with their universal distribution, in the soil, and in the sea, that enable bacteria to perform their most fundamental function, which has to do with the building up and the tearing down of the protein molecule.

I use the term protein molecule to include the molecular components of all living matter. As two atoms of hydrogen and one of oxygen combine to form the molecule of water, so a certain number of atoms of carbon, hydrogen, oxygen and nitrogen combine to form the protein molecule. It is not the same as the cell—that is made of many molecules. Nor is the protein molecule of one substance the same as that of another—the protein molecule of wheat is different from that of corn, and that of animals different from that of plants, and that of one species of animal or plant different from that of another. But differing as they do, they all have one attribute in common—they all contain the four elements above mentioned; many contain others, but all contain these. When a plant or animal takes food that simply means that it is taking the materials and recombining them to form its own protein molecule and incorporating them into its own being. And when a plant or animal sends forth offspring into the world, that simply means that another cell or aggregation of cells has been turned loose to deal with protein molecules. The finest distinction that has yet been drawn between plants and animals rests upon the protein molecule. In a general way, the plants build up this molecule of raw material, injecting the necessary binding energy into it—energy received from the heat and light of the sun, while animals rearrange the molecule to suit their own needs, and in doing so, extract from it sufficient energy for their own vital processes.

For green plants to supply their carbon, hydrogen and oxygen needs is a relatively simple matter, and will not be discussed here. But not so nitrogen. Here indeed is a serious problem. Not that nitrogen is scarce in the world—far from it. Indeed nitrogen is one of the most abundant of all substances. Aside from the natural deposits in the form of nitrates, and aside from the nitrogen bound up in every animal and vegetable cell, 79 per cent of the atmospheric air is nitrogen—enough to exert a nitrogen pressure of nearly thirteen pounds to the square inch. So I say it is not its scarcity that makes the nitrogen problem, but the fact that nitrogen is not usable in the gaseous form—has not yet had any energy injected into it, as the physicists say, it is in stable equilibrium. Before the nitrogen gas with which the air is laden can be made available for plant food, for the higher plants it must be combined with other chemical substances, into nitrogen salts, as sodium, potassium, or calci-

um nitrate. It is not the amount of nitrogen in the world that counts, but the amount of *combined* nitrogen, the amount of nitrogen salts. The world would die of nitrogen hunger in the presence of a nitrogen pressure of thirteen pounds to the square inch.

Now since the amount of combined nitrogen in the world is limited, and since every living being has to have a certain amount, it follows that plants and animals are often put to it to supply their nitrogen needs. In fact the struggle for existence is not much more, not much less, than the struggle for nitrogen. The supply of combined nitrogen is not only limited, but even that is always leaking away, falling back into the free state. For nitrogen is at once hard to combine, and easy to set free, and the agencies setting it free are operating on a tremendous scale. When an animal dies, we say it decays. By that we understand that the protein molecules are attacked by bacterial or fungous agents of decay, and split into simpler molecules, and these in turn are acted upon by yet others of the ordered army of microorganisms until they are finally reduced to ammonia and nitrogen. The nitrogen leaks away into the atmosphere and contributes to the 79 per cent of gas in the air. The ammonia may leak away also, or it may become fixed in the soil by the agency of certain nitrifying bacteria. These bacteria convert the ammonia into nitrates, and the nitrates so formed become available to the roots of green plants. On the other hand the nitrates of the soil under certain conditions are converted into ammonia, and leak away into the atmosphere. The constant leakage of nitrogen from the combined to the gaseous form results in a nitrogen shortage for the plant world, and since animals depend upon plants for their supply of nitrogenous food, this shortage does not stop with the plants, but reaches the animal world as well. We may thus speak of the problem which besets all living things as the nitrogen problem.

And of all the world there is only one group of organisms that has solved the nitrogen problem in a basically satisfactory manner. As much as I would like to say it, it is not man. This solution has been achieved by that lowly group of plants—the nitrifying bacteria. These organisms which occur in the soil and in the sea, have the power of causing free nitrogen to enter into combination with other elements, and so serve as material for the construction of the protein molecule.

The leguminous plants have solved the nitrogen problem in a way. That is to say they have contracted with the bacteria to do it for them. What the legumes furnish the bacteria in return for the nitrogen that they receive is not to be discussed here—suffice it that it is done on a large scale. Under the stimulus of these bacteria, the roots of legumes swell to form nodules. Later when these root nodules are full of nitrogen which has been combined by the bacteria, then the tissues of the root destroy the nodules, raid their stores of nitrogen plunder, and live and thrive in soils that have little or no nitrates. Thus says Keeble: "The gorse occupies large tracts of sterile waste in Brittany and elsewhere, and the traveler in spring may journey for miles between tree-like groves of gorse, ablaze with golden blossom, every particle of which owes its presence in the air to the nitrogen-fixing bacteria that work in its roots underground." These bacteria it is which have provided the essential organic nitrogen compounds without which the tissues of the flowers could not have been formed. Large tracts of waste land in Germany have been made amenable to cultivation by planting to lupines. In this country velvet beans, peas, beggar weeds, vetch and clover are our chief plants that combine with nitrifying bacteria.

Man has partially succeeded in solving the nitrogen problem in two ways. He has learned to take advantage of the combination of bacteria and legumes, and by crop rotation adds large quantities of nitrogen to the soil. In Germany it has been estimated

by competent authorities that no less than a half billion pounds of nitrogen are added annually to the soil this way. But also where power is cheap, he has succeeded in combining the nitrogen of the air with calcium, forming calcium nitrate. The combination is effected by means of electrical energy. This is carried on in Germany on a commercial scale. But at best this will always be supplementary to the work of bacteria.

Every farmer knows from sad experience what the leeching of soil means. It means that his costly fertilizer, his nitrates, dissolve in the rain, and seep down into the ground, or wash away to the creek and join with the waters of the river on their way to the sea. Every stream that flows carries its burden of precious nitrates seaward. Some authority, I know not who, has estimated the amount of combined nitrogen that reaches the Gulf of Mexico every year through the Mississippi river. It is unbelievable. But why, you will ask, does not all the nitrates eventually find their way to the ocean? The answer is not far to seek. Plants grow there as here. Nitrates function in the sea as on the land. And while there is a current of nitrogen constantly flowing from land to sea, there is also a current flowing from sea to land. Our sea foods, and kelp, and other organic matters brought to land form a current of combined nitrogen, but that is of small moment compared to the current that is set free in the sea—set free by bacterial action to join the 79 per cent of the nitrogen of the air, thence to flow over the land and again be harnessed into action by the bacteria of the soil.

These are large thoughts, but over and above them is yet a larger one, still within human grasp. The third planet out from the sun, which astronomers call the earth, has its seven seas filled with many kinds of fishes, and on its lands grow great forests of mighty trees, and myriads of insects feed upon the leaves, and birds fill the air with song. But this has not been always thus. Time was when that planet was new and hot from the furnace of the Maker. Wrapped in clouds of vapor, which the fierce rays of the sun could hardly pierce, semi-darkness brooded upon its surface. And there was no living thing.

But gradually the heat of that planet was lost by radiation, and the waters cooled, and the vapors fell as rain, and the land and seas were divided.

And then at some point, sometime, there was a little stir among the atoms, as though one were changing its position with reference to its neighbor atom. And lo! Life was upon the earth. From whence it came, and how, what matters? But its mission was to produce "life more abundant." And in that primal spark was bound up all the potentialities of the rugged oak, and the delicate orchid; the mighty sequoia of the western forest, and the tiny mushroom that grows at its feet; all of the potentialities of the great bald eagle screaming above the sea and the sluggish oyster helplessly chained to its rocks. Of all wonders that man has been able to contemplate that first little spark is the most wonderful. To have bound up in itself, small as it was the potentiality of becoming a plant, yea thousands of plants, of thousands of species, genera, families, orders, the vegetable kingdom, with all that it means; and at the same time the potentiality of becoming an animal kingdom, with complex forms and habits, its laws and tendencies, its parallels and antagonisms—not only all of these, but it must have been bursting with impatient impulse to split up its antagonisms and set them free. For instance it had a tendency to move and a tendency to keep still, a pair of antagonisms these, which could not develop in the same individual, hence it was necessary to divide, this one developing locomotion and becoming the progenitor of the animal, that one developing stability and becoming the progenitor of the vegetable world. Wherever there was a pair of antagonistic tendencies, there was a splitting up, each to go its own way untrammeled by the other.

And thus began that mighty climb through the ages which we call evolution; that interminable task of splitting up all of these inherent tendencies. I may add by way of parenthesis that according to the view of that matchless thinker, Henri Bergson, the first great split was upon the basis of locomotion, one to develop a nutrition system in which food is brought to it, plants we call them; the other to develop a system by which it goes in search of food, animals they. And then the animal line split again upon the basis of intellect and instinct, the latter choosing as its line of evolution insects, while the former chose as its habitat the line that culminates in man. And today the three great apices of organic evolution are reached in the flowering plants, the social hymenoptera, in which the colony forms the unit of life and man.

But it must not be inferred that this climb was as simple as it seems in the telling. Animals, plants, have lagged behind in the procession. Intermediate forms we call them. Others have halted and marked time. This is the biological status of the bacteria. Others have even turned back, resulting in such retrograde forms as fungi and parasites. Many paths have been followed a way and then abandoned—we know such by extinct fossil remains that have no living counterpart. But—and this is a hard thought to express—some, headed toward these three apices, have steadily climbed higher and higher; are still climbing, but where? Who can say? It may be likened to the building of the Panama Canal. In the construction of that waterway, railroads, houses, villages were built in the Chagres River Valley—even in the river bed itself. And what is more, they were built there with the full knowledge that they would serve their turn and then be torn out and built anew higher up the hill, and up and up till the structure was completed. In working out the scheme of organic evolution, the same nitrogen must be used over and over again. Plants, animals grow up and die and disintegrate, and the components of their bodies are again incorporated into the bodies of other plants, animals. Life is the great organizer, the great architect, while the bacteria are the artizans the builders that build up bodies and then tear them down and build them up again, and every time they are torn down and built anew they are built a little higher up the river brink.

In this day when we are threatened with railroad strikes, and when the submarine menace threatens our very national existence, the one great problem of man, beside which all others pale into insignificance, is the problem of transportation—the one of transporting soldiers, munitions of war, but above all of food supplies. In such times we are moved to admire the perfect scheme of transportation adopted by organic evolution. A scheme that has been in operation since life began on earth, has moved steadily without a tremor, without a halt and will continue till evolution ceases. Again it is the bacteria. A bird's-eye glance over the world will reveal great barren spots in one place, and in another jungles, and all complicated by a gigantic irrigation system which is constantly washing the combined nitrogen into the sea, all of which means excess of nitrates here, deficit there. But permeating the whole is the bacterial system of transportation, by means of which nitrates that are unusable here are released into the air as nitrogen gas, to be recombined there where needed. The nitrates released in the sea flow over the bean fields where nitrifying bacteria recapture them to rehabilitate the soil. A rotting heap of compost in China may ultimately make the clover blossom in America, a sultan transformed make fertile the peasant's plot.

Here, too, is a rational interpretation of disease and death. If the great scheme of organic evolution is to have life more abundant, then the three things required of every living being are first to let environment do what it will, what it can, with the individual; and then to produce offspring that will have

the combined characteristics that parental environment and heredity give it; and lastly to yield up its own body that the contained nitrogen may go back to the vital circulation, that evolution may climb higher and higher. Now when a plant or animal has reached maturity, and sent forth offspring into the world so that environment and heredity have had the chance to do their perfect work, then it has reached the last lap of its journey and the bacteria, as if by instinct, are already lying in wait to tear it to pieces, to set its nitrogen free for further use. If William Osler would recommend chloroform after sixty, no wonder these bacteria become impatient with waiting! No wonder they congregate round every living being waiting the final signal! No wonder some of them sally forth to hurry the signal along! And when environment or heredity has produced a puny specimen, not suited to carry on this great work of evolution, no wonder a group of bacteria is despatched to tear it down that its valuable nitrates may be used by those more fit! And thus, I had almost said that bacteria contribute to the survival of the fittest—more than that, they make the fittest to survive, by hastening the demise of the unfit.

A few years ago a prehistoric mammoth was found buried in the snow in Northern Siberia. Frozen there for centuries perhaps, it could not decay, that is to say bacteria could not act upon it. It was in such a state of preservation that its flesh was used to feed the dogs. For some centuries, at least all the combined nitrogen in that body had been tied up.

Now let us suppose that some world-wide cataclysm should in some way destroy or render inactive all the bacteria of the world. Then when an animal died, he would lie there in a state of preservation—embalmed, so to speak. (Indeed embalming is nothing but infiltrating the body with such chemicals as will prevent bacterial action.) Then once a bit of nitrogen found its way into a plant or an animal, then would it remain tied up forever, as completely drawn out of the circulation as if it did not exist. Even the soil that we ordinarily call rich would refuse to yield its crops, for that too depends upon bacterial action. In the rich glades of South Florida thousands of carloads of tomatoes and other vegetables are produced every year. But these glades, submersed as they are during the rainy season, are nearly free from bacteria. It matters not then how rich nor how much commercial fertilizer is used they would yield no crops if the soil were not artificially stocked with bacteria each season. This the farmers do by adding a bit of compost to each plant, and then those vast tracts in which the great blue heron wades during the rainy season, furnish the nation with salad during the dry season. So I say that if some great cataclysm destroyed all the bacteria, then decay would cease, and so would growth. The crops of the field would turn yellow, and then wither; the grass would no longer feed the cattle, and famine would stalk forth in the land. The fish would die in the sea, and the waves would wash them ashore, and the sun would crisp their shrunken bodies; there would be no decay, no more foul odor in all the world, neither would the fragrance of the violet be perceived again; herbivorous animals would fall by the wayside, and the carnivora would devour their carcasses, while they in turn would fall at the drinking places. Spring would come, but it would bring no green, nor autumn any gorgeous foliage; the trees would die, but they could not rot; their leafless forms would stand like gravestones marking their own dead past.

Such the importance of bacteria in the economy of nature! Such the dependence of the infinitely great upon the infinitely small! Such the vision of the poet-friend of Darwin:

> **Flower in the crannied wall,**
> **I pluck you out of the crannies,**
> **I hold you here, root and all, in my hand**
> **Little flower—but if I could understand**
> **What you are, root and all, and all in all,**
> **I should know what God and man is.**

Such the vast and coherent phenomena that will forever link the name of Tennyson with Darwin and Pasteur:

I held it truth with him who sings
To one clear harp of divers tones
That men may rise on stepping stones
Of their dead selves to higher things.

THE EARLY DIAGNOSIS AND HOME TREATMENT OF PULMONARY TUBERCULOSIS.*

R. H. McGINNIS, M. D.,

Jacksonville, Fla.

It is estimated, and the estimate is probably correct, that every person at some time of life becomes infected with tuberculosis and that the infection occurs in the majority of cases in early childhood either through the respiratory or intestinal tracts. Implanting itself in some glandular substance, it either becomes active and invades distant tissue or, because of natural resistance of the individual, remains passive until some devitalizing force breaks down the barrier of resistance. Bearing these facts in mind, the medical man should exclude tuberculosis in every patient examined, or prescribed for, before making a diagnosis. A diagnosis of early tuberculosis requires two or more observations and examinations and should be insisted upon when it is suspected.

History: A definite and complete history of the patient's past illnesses and present complaint, including environments, possible exposure, family predisposition and habits, offers good and valuable data toward a diagnosis. If it develops from such a history, a patient has recent loss of weight and appetite, lassitude and a tired feeling on arising in the morning, shortness of breath on exertion, lack of energy and application, chilliness or feverishness in afternoon, cough, or slight clearing of the throat in early morning, with or without expectoration, night sweats and pain in chest. With this array of symptoms, or only a few of them, and the pulse rate is increased and there is slight elevation of temperature in the afternoon and heart and kidney disease can be excluded, the chances are that the patient has tuberculosis. With this information and an impaired respiratory murmur is elicited and some crackling rales are heard in the upper portion or definite areas of the lungs, a diagnosis of tuberculosis can be made with almost certainty. If there is still some doubt about the diagnosis, the employment of the X-rays is suggested as a valuable aid and recently a complement fixation test has been perfected which is extremely accurate and which promises to afford very definite information.

The diagnostitian must be very alert and resourceful in order to detect the disease early. The tubercular are always hopeful and will mislead the doctor by ambiguous and false statements relative to symptoms. They hope they do not have the disease, hope the doctor can not find evidences of it, and if he does, hope for a speedy restoration.

Home Treatment: The success of home or any other treatment depends entirely upon discovering the disease in its early development. As 75 per cent or more of the tubercular are among the poor or laboring classes, with moderate or insufficient means of support, with a family of wife and several children, the advisability here of home treatment is doubtful. People in such condition and under such circumstances are usually ignorant of health conservation, hygiene and sanitation, are of unclean habits, and measured by standards of wholesome living, incapable of thorough and efficient cooperation to justify the attempt of home treatment.

An Illustration: A man, a wage-earner, with a wife and four small children, becomes incapacitated from tuberculosis; his savings, if he is frugal, maintains the family with food, clothing and shelter for a time; he is

---

***Read before the forty-fourth annual meeting of the Florida Medical Association, at Atlantic Beach, May 18, 19, 1917.**

attended by his faithful wife and the children play about the room and bed of the invalid; the house in which they live is small, the entire family living and sleeping in two or three rooms; the patient is careless in coughing, sneezing and spitting, and so on and so on. No need to complete the picture. Every physician has viewed it time and time again. The doctor may call often, the visiting nurse, or other charitably inclined person, frequently, all offering the best of advice for the care of the patient, leaving literature dealing with disposal of sputa and other excretions, personal cleanliness, hygiene and sanitation. With such a program carried out with the best of effort and sincerity, there is a doubt, in my opinion, if any progress is made, either in the restoration of the patient or the prevention of the spread of the disease to the other members of the household. If the mother and not the father is the victim of the disease, the problem is more serious.

Are such homes to be broken up, the members of the family separated for a time and cared for until the focus of infection is eliminated? Sentimentality says no; science says yes. If progress is to be made in the prevention of tuberculosis, the focus of infection must be controlled. In my opinion it can not be controlled in the squalid, insanitary surroundings of the average cottage home, if the subject of the disease is liberating tubercle bacilli in his sputum.

In the homes of the middle class the care and attention of the tubercular sick will devolve upon a member and possibly two members of the family. This will lessen the finances necessary to maintain the family and home, lessen the means of obtaining the best of food and surroundings for the victim, and expose the caretaking members of the home to continued chances of contracting the disease.

In this class, also, the sanatorium, or preventorium, which is a better term, removes the focus of infection, relieves in a measure the anxiety of the family, and returns the attendant or attendants on the sick to lucrative pursuits. In this class of cases the family could cooperate with preventorium authorities, bearing a portion of the expenses necessary to maintain the patient in suitable environments and surroundings. In such a division of the responsibilities the family and county or State will share, and both be mutually benefited, at the same time offering the patient the best chance for restoration to health and productiveness.

Home treatment for the well-to-do is a simple matter and resolves itself into expenditure of money to place the patient in proper surroundings and the providing of proper food and care. However, the rich seek sanatoria treatment, as they find it preferable.

THE LEADING AND MISLEADING SYMPTOMS OF KIDNEY STONES.

E. P. Merritt, M. D.,

Atlanta, Ga.

The leading symptoms of renal calculi are pains in the region of the kidney which radiate forward and inward to the inguinal region, pains in the lumbar region rarely reflected to the lower limbs, renal colic, and even hematuria or pyuria. As a rule this clear picture contains the diagnosis outline.

The misleading symptoms which often occur with renal calculi are apt to be confused with those of cholycystitis, appendicitis, lumbago and pyelitis. This as a rule applies to the long standing cases especially where the symptoms are confined to the right side. Lately I have seen several cases where the symptoms were confusing, and it was difficult to decide whether they arose in the kidney or the gall bladder. Even the X-ray might not be absolutely definite, though usually it shows renal calculi plainly.

The method I pursue in reaching a diagnosis in such a case is to catheterize both kidneys, draw specimens from ½ to 1 hour with an iron oxide catheter in the right kid-

Plate No. 1.

X-ray picture with iron-oxide catheter up to pelvis of kidney. This stone is very small and gave great deal of pain. Some are many times this size and give very little pain.

ney or up to the pelvis, and then have an X-ray taken and note what position the pelvic shadow is in relation to the catheter shadow, and then inject into the pelvis of the kidney a 15-percent solution of thorium nitrate. By comparing the original suspected stone shadow with the thorium shadow along with the urinary findings from the side examined, we are enabled to reach the conclusion.

Some cases of gallstones simulate renal calculi so closely that we are sometimes at a loss to differentiate sharply, especially when there is no jaundice and no bile in the urine. The appendix may point upward, and be not far from the right kidney, particularly if the right kidney be posted. A pain in the right iliac region even at McBurney's point does not necessarily mean appendicitis. On the other hand, appendicitis is more common than renal calculi, but renal stones have been diagnosed as appendicitis. Indeed, the pain of a renal calculus may be referred to the area of McBurney's point where the ureter tips over the brim of the pelvis.

In long-standing cases of renal calculi there may be a disturbance in the region of the appendix, the reflex gastric disturbance and general intestinal pains. The contrary condition may exist, and appendicitis be diagnosed as a renal calculus, particularly when the appendix points upward.

The key to the diagnosis is the X-ray and the urinary findings. Leukocytosis may exist with appendicitis and with renal calculi, and pyuria may exist with renal calculi, without renal calculi or acute appendicitis may occur in the course of a pyuria. Careful history, careful examination, with persistent use of the laboratory usually solve the problem. A renal calculus has time after time been diagnosed as lumbago, whereas the real

Plate No. 2.

Plate No. 3.

X-ray picture of case differential diagnosis between gall-bladder stones and renal stones. This case was very misleading. The symptoms pointed to both, but to neither one enough to make differential diagnosis.

The pelvis of the kidney is injected with 6 cc. 15 per cent thorium nitrate solution. The stones can readily be seen below the pelvis. A correct diagnosis was immediately made of gallstones.

source of the pain was the kidney; and where either a renal calculus or a pyelitis, or both exist, we will often take the patient's diagnosis of a lumbago without further more careful examinations. Once I took the patient's diagnosis of a lumbago, whereas the real trouble was ureteral calculus. A professional friend later had the patient under his care and cured the lumbago by removing the ureteral stone. Since then I have been more careful. Indeed, renal calculus or a ureteral calculus may give the typical symptoms of a lumbago.

Unless the X-ray shows the renal calculus, the kidney findings are essential and necessary. Pyelitis, pyonephrosis and tubercular kidney are to be taken into consideration. The X-ray may not show certain stones such as a pure urate stone or a pure uric acid stone, but these are relatively rare as they are usually mixed with the phosphates or the oxalates.

It often requires considerable judgment after a renal calculus is diagnosed to decide whether to remove the stone or the kidney. This should, if possible, be decided before the patient is operated upon. Catheterizing the ureters and examining the urine separately from each kidney, followed by a functional test, gives a definite idea of the involvement and functional capacity of the kidney in question. If the affected kidney has a low phenosulphonepthalein test with low urea, there is evidence in favor of nephrectomy, provided the opposite kidney is normal or nearly so. The subject shows how necessary it is to study each case individually, and that frequently it takes X-ray ureteral studies and much clear judgment not only to make the correct diagnosis but to decide what is best for the patient after the diagnosis is made.

THE DIAGNOSIS AND TREATMENT OF INCIPIENT SENILE CATARACT.

W. Herbert Adams, M. D., D. O. (Oxford),

Jacksonville, Fla.

The diagnosis of the incipient stage of senile cataract is not such a simple and easy matter as it is generally supposed to be; indeed, without the intelligent use of the ophthalmoscope it is often absolutely impossible to definitely determine whether the lens is becoming cataractous or not. The grayish color of the pupil, often seen in elderly people, has led many superficial observers to make a diagnosis of cataract where there was none, and sometimes to make the fatal mistake of diagnosing a chronic glaucoma as cataract, with the advice to the patient "to wait until the cataract was ripe to have it operated on." Many such patients have presented themselves to oculists for an operation for

cataract, only to learn that they were hopelessly blind from a disease which might have been alleviated, if recognized and treated at an earlier stage.

The principle symptoms of incipient cataract are as follows: Alteration of vision. Patients may first notice that their glasses do not suit them, that they are too strong, or that they can discard them, and read fine print without them, and claim that they are getting their "second sight"; they, therefore, think that their eyesight is improving, but that this is not the case can generally be proven by a careful test of their distance vision. They have simply become myopic on account of the swelling or increased density of the lens. If a cataract is of the nuclear or diffuse type, they will soon complain of things looking hazy or foggy to them, and will be constantly wiping their eyes and glasses to remove the dust they think is the cause of their foggy vision; they will often complain of a feeling of grit or sand in their eyes, which is due to a conjunctivitis set up by the constant strain of their eyes in the endeavor to get clear vision. They may, also, complain of browache caused by increased tension, owing to the swelling of the lens. The nuclear or diffuse form, also, occasionally gives rise to halos around lights. I have recently seen such a case. When the patient described her symptoms, I jumped to the conclusion that she was suffering from glaucoma, but, when after a careful examination, I found a small and freely movable pupil, an absolutely transparent cornea, and a carefully-made tonometer test showed an absolutely normal tension, and when the ophthalmoscope showed a beginning diffuse capacity of the lens, I had to change my diagnosis to cataract instead of glaucoma.

If a cataract is of the peripheral variety, where the opacities are generally sector-shaped spicules, the patient may complain of monocular diplopia or polyopia, due, it is supposed, to irregular lenticular astygmatism. This form may not seriously interfere with vision until comparatively far advanced, that is until the points of the opacities have invaded the pupilliary area. Patients with this form of cataract will see better in a bright light because the pupil is then smaller, and the opacities do not come in the direct line of vision; patients with the nuclear variety see best in a dim light when the pupils are large, they are then able to use the clear peripheral part of their lenses. These patients may have their vision temporarily improved by the constant use of a weak solution of atropine.

Patients may, also, complain of seeing various colored and shaped spots before their eyes. If these spots move only when the eye is moving, they probably are caused by opacity of the lens, but if they are constantly changing their position when the eye is fixed, the probability is that they are in the vitreous.

Beginning opacities of the lens are best made out with an ophthalmoscope after a mydriatic has been used. The symptoms will vary with the type and stage of the cataract—in the nuclear or diffuse variety there will at first be only a hazy appearance of the center of the lens, and unless a very low power of illumination and a plane mirror is used, the opacities can not be made out at all by transmitted light, and sometimes a strong focal illumination is better. The opacities show a gray color by focal and a dark color by transmitted light. There is a precataractous stage, which can sometimes be made out by a careful ophthalmoscopic examination; in these cases, while there are no actual opacities, certain sectors of the lens have different indices of refraction, and when the light strikes them at different angles, they present different appearances. This condition is hard to definitely describe, but when one has once seen it, it is easily recognized, and when found, it is a sure precursor of a beginning cataract.

Conjunctivitis, generally of a chronic or mild type, is sometimes present. The anterior chamber is usually normal in depth

in the early stage, later it may become shallow on account of the swelling of the lens. The pupil is generally small, and should be active, if there is no other disease of the eye. The age of the patient has also to be taken into consideration, the senile type of cataract being rarely seen before the age of fifty. The general health of a patient cannot be relied on much to aid us in our diagnosis—some apparently perfectly healthy and robust people, for their age, will be found to have senile cataract; others, semi-invalids, of great age, will have absolutely clear lenses. I do not wish to state that the general health has no effect on the formation of a senile cataract, for I believe it does have, but so far we are unable in many instances to trace the connection.

Treatment: Nonoperative treatment of senile cataract, in any stage, has until recently not been attended with any very brilliant results, although innumerable remedies have been used, recently dionin, in solutions of varying strength, instilled into the conjunctival sac, have been very highly recommended in incipient senile cataract, and apparently with some success, and is certainly worthy of a more extended and persistent trial. There have been recommended in the past few years many methods of hastening the ripening process. All of these methods have their advocates, and all of them have their particular merits; they, however, do not come in the scope of this paper, and hence the merits of the various processes will not be gone into.

I wish to call particular attention to the method of treatment which is strongly advocated by Colonel Henry Smith, of the British Army Medical Service in India, and by Dr. E. L. Jones, of Cumberland, Maryland. I refer to the sub-conjunctival injection of a solution of cyanide of mercury. Colonel Smith, who is the originator of the India-Smith or intracapsular extraction of the lens and who sees more cataracts in a year than most oculists do in a lifetime, states, unequivocally, that he has frequently seen beginning opacities clear up, or remain stationary, and the vision improve from 20/40 to normal, after the subconjunctival injection of cyanide of mercury. When such an authority as this makes such a statement, we are bound to, at least, give the method a fair trial. Dr. Jones, also a very brilliant and original thinker, highly recommends this method of treatment, and recently it has been advocated by several other American oculists, and I wish to add my testimony to the efficacy of this method when properly and judiciously used in the very early stages of cataract. I am not able to state positively just how it produces its beneficial results—whether the intense hyperæmia and reaction produces the improvement by increasing the nutrition of the lens, or by the greatly increased lymphatic circulation, I do not know—but that it does arrest, and in some instances entirely clear up the cataractous process, I am thoroughly convinced, both by my own experience as well as by the testimony of others in whom I have implicit confidence. The technique of giving a subconjunctival injection is very simple: The eye is first thoroughly cocainized and washed out with some mild antiseptic, a speculum may be used, but is not essential if the patient is at all tractable; with fine forceps a fold of conjunctiva is picked up, the needle inserted beneath the conjunctiva, and the injection slowly made—the site for this particular injection is preferably about half way between the lower sclerocorneal junction and the lower fornix so that there can be no interference from adhesion of the conjunctiva to the sclera, with a flap, operation, should an extraction become necessary later on.

The formula for the injection varies somewhat with the age of the patient and the amount of reaction we wish to produce; the strength of the cyanide solution may vary from 1-2000 to 1-6000, the younger and more vigorous a patient, the stronger the solution will have to be. To prevent or alleviate the pain, which may be rather

severe for several hours following the injection, a hypodermic of morphine is given about an hour previous to the subconjunctival injection, and morphine, dionin or aconin may be combined with the cyanide solution; the quantity of the solution may range from 20 to 40 minims; the reaction must be pronounced to be of any material benefit. Patients should be told beforehand that they will have a very bad-looking eye for some days, otherwise they will be greatly alarmed and apt to think that their eye has been harmed instead of helped by the injection, but in a few days the œdema and inflammation disappear and the eye soon assumes its normal appearance, and patients will frequently be pleased to find that their vision is materially improved.

The injection may be repeated one or more times at varying intervals; the injection is entirely harmless if ordinary care is used, and the results are frequently most gratifying to both patient and physician. The injection can be given perfectly well in the office and no after treatment beyond washing out the conjunctival sac, daily, is necessary. It is well, however, to cover the eye for a few days until the œdema and inflammation have subsided.

When we realize that this is about the only method that offers any well-grounded hope of benefit or relief to these patients, who are otherwise forced to wait for months or years until the cataracts have reached the operable stage (unless we are prepared to do the intracapsula extraction or some ripening operation), it seems to me that this method of treatment should be given a fair trial, and Florida offers a fertile field for a test of its usefulness, as cataracts are very prevalent in this State, as in all tropical and semi-tropical climates where there is a great deal of bright sunlight.

As prophylactic measures, we should advise the use of suitably tinted lenses to those who are much exposed to the glare of the sun. Another very important prophylactic measure is a very careful refraction and suitable glasses that all eyestrain may be relieved; of course, the general health must be kept at the highest possible standard.

This paper is written to stress the importance of an early recognition of senile cataract, and to bring to your attention a method of treatment that offers a definite promise of beneficial results.

720 Professional Building.

APPENDICAL ABSCESS: ITS TREATMENT AND COMPARATIVE FREQUENCY IN SMALL TOWNS AND RURAL DISTRICTS.*

N. A. Baltzell, M. D.,

Marianna, Fla.

Appendical abscess, whether acute or following as a result of chronic appendicitis, subacute or otherwise, is, after all, produced by a continuity of infection from the appendix itself. It matters not whether we accept the theory of Aschoff, which to my mind appears perfectly clear, that appendicitis is caused by an infection due to migration and lodgment of bacteria in the recesses and ridges of Luberkin crypts and their further invasion of mucous membrane producing an increase of white-blood cells under its epithelium, with still a further involvement if not checked, resulting in the various coats of the organ being affected, finally extending to the serosa itself. Such conditions existing and unchecked produce extreme tension in the walls of appendix, a stenosis following; and intramural abscess, gangrene or perforation results, with extension to the surrounding peritoneum and resultant abscess of greater extent and proportions.

I say it matters not whether the enterogenetic theory above mentioned is accepted or that of Kretz, who states that pathogenic organisms, particularly streptococci, are

*Read before the forty-fourth annual meeting of the Florida Medical Association, at Atlantic Beach, May 18, 19, 1917.

carried into the appendicular lymphatics by way of blood vessels forming leucocyte collections towards the mucous and serous coats, producing finally the same results.

The fact remains that abscess of the appendix is the result of an acute attack primarily, or of an acute excerbation of a chronic condition; that it is comparatively rapid and progressive in its formation is not to be denied, yet for a peri-appendicular abscess or a diffuse supperative peritonitis to result from an appendix of an acute infective nature, we must have either the bursting of a primary abscess in the appendix itself, gangrene or perforation without primary abscess.

In a gross way we will divide abscesses of appendix into four types:

Type I. Intramural abscess.

Type II. Localized adherent abscess.

Type III. Localized but nonadherent abscess.

Type IV. Nonlocalized with no including adhesions.

Treatment: This phase of the subject is one that extends an open field for discussion, and particularly that of the treatment of the appendix itself.

The literature is fairly full of references wherein our most prominent surgeons of today thoroughly disagree on this point, viz., whether the appendix should be removed in all abscess cases. Personally, with my limited experience of thirty-one cases of abscess appendix, I have followed this course: In those cases of Type II, the adherent localized cases, only in such instances wherein the appendix presented itself readily or was readily found without considerable search and traction on adhesions, same were removed; otherwise simple incision and drainage was done. The same treatment of appendix was followed in Type III, the nonadherent cases.

In Type IV, which includes for practical purposes the ruptured cases, and those of diffuse supperative peritonitis, the peritoneum already extensively involved, and the patient can be permitted to withstand a few minutes longer operative procedures, the appendix would best be removed, and such has been my treatment in these cases.

In support of the above treatment Dr. J. B. Deaver says: "The abscess being strictly circumscribed without accompanying peritonitis, the appendix not being visible or palpable, the abscess should in my judgment be evacuated, drained and allowed to heal, taking out the appendix subsequently.

Dr. J. B. Murphy says: "The appendix should be removed only when it is very accessible and the evidence of virulence mild."

Dr. A. J. Ochsner says: "If we can remove the appendix without danger of infecting the surrounding peritoneum, we always do so at primary operation; but if there is the slightest doubt in our minds we simply drain and remove appendix later."

Dr. W. S. Rodman: "After emptying the pus a limited search is made for appendix. I do not, however, break down adhesions and make an extensive search for it."

Sir Berkeley Moynihan: "If the appendix comes into view at once or after the simplest examination, it is removed, but if prolonged search is necessary, during which adhesions have to be separated, no attempt is made to remove it."

A number of others subscribe to this method of treatment.

On the other hand, notable exceptions to the above may be found. Among them Dr. Van Buren Knott reports 501 abscess cases of appendix operated in the seven years preceding 1914, and in every case the appendix was removed with only six deaths; a mortality of 1.2 per cent.

Dr. Archibald Cuff reports 68 cases with removal of appendix in all of them, with 3 per cent death rate.

Contra-apposed to this result, however, Dr. Maylord, an English surgeon, states that in 127 cases of abscess appendix 49 were simply opened and drained; in the remaining 78 cases the appendix was removed; the

mortality in the 49 cases was 10.2 per cent, while the cases in which appendix was removed the mortality was 29.5 per cent. I am free to admit that such death rate is extremely high in both cases.

So, after all, the personal equation has a great deal to do with the choice of the method, likewise it is frequently a matter of choice dependent upon the conditions met with at primary operation.

The operative treatment in my hands in these cases has been to open the abscess in the most prominent or resisting part, using the gridiron incision whenever possible, packing off with gauze tampons as protection to the peritoneum and the immediate turning of patient to right side as soon as pus is found; only gentle manipulations are now made, however, the cavity may be wiped out lightly with gauze sponges. The matter of drainage is the all-important procedure at this stage of operation; for this purpose nothing has been so good in my hands as a large, non-collapsible soft-rubber drainage tube without wicks or gauze; this tube is placed at the most dependent portion of abscess, and frequently a second large tube of like character is placed deep down into pelvis. These tubes are allowed to remain in position no less than forty-eight hours, and frequently much longer, at which time they are renewed and the cavity lightly swabbed out with gauze.

Dependent upon the amount of drainage, this size tube is continued for a few days longer, or gradually smaller tubes are used when cavity begins to fill in, which are regularly diminished in size and as cavity heals from bottom tubes are likewise shortened in length.

The position of patient in bed, that of requiring him to lie almost exclusively on right side for first ten days, is a very important part of the treatment in these cases, for drainage under such conditions is infinitely better.

The Fowler position is also now used practically in all my cases.

Protocyclosis with saline solution after the Murphy method has been a saving grace in my opinion, and glucose 5 per cent in the emaciated and underfed has been a valuable addition to the treatment.

In my series of 31 cases there were 2 of Type I, 16 of Type II, 10 of Type III, and 3 of Type IV. The mortality in above series was 3.03 per cent. The appendix was removed in only 5 of the series—2 in Type I, 1 in Type II, and 2 in Type IV. Ten of the cases were operated two years ago and longer, and not one has returned for subsequent operation. There was only one fecal fistula among the series, which healed readily without operation in three weeks' time.

That abscess appendix cases are comparatively more frequent in the small towns and rural districts is a fact that has presented itself to me most forcibly.

In a series of inquiries to ten small hospitals in ten small cities and towns in the South as to the comparative percentage of abscess cases to simple acute cases of the appendix, I had eight replies, and the total average of the eight was 40 per cent. From my own personal observation I have found it over 55 per cent.

Dr. R. M. Harbin reports 22 cases of appendix abscess, 14 of which were from the country. That such a condition is possible, I am constrained to believe, is in a number of cases an indictment of the doctors as well as their clientelle.

Dr. Murphy stated in 1912: "That every case of acute appendicitis that comes to a doctor with abscess outside of the appendix has in it unquestionable proof of the inefficiency of treatment up to that time."

It does not necessarily follow that the doctor has failed to make the proper diagnosis, but it is quite possible that his insistence upon immediate operation is far from emphatic, that he enters into the spirit of procrastination so delightful to the patient at this time, and the patient who is naturally prejudiced against operations at all, cheerfully suffers in abject ignorance of what is

really going on inside of him. With incredulity born of this ignorance, he permits himself hourly to approach the state of an emergency case with all the elements of danger attendant upon such cases which could have been avoided by an earlier operation.

When we consider the different stages of inflammation of any organ, and especially that of the appendix, though we agree that frequently the lapse of time between the primary infection and that of abscess formation of the appendix is extremely limited, yet there does exist in primary appendicitis, symptoms so plainly present in the extreme majority of cases that with the urgent insistence on our part for operation such cases can be brought to operation in the earlier stages with time quite sufficient to obviate the necessity of having to deal with appendix abscesses at all, and it is quite possible that the time may come when such cases will be truly antiquated and we may then be able to regard appendiceal abscesses as a pathological entity of the past.

Bibliography.

Walschied: International Journal of Surgery, 1911, XXIV, 107-112.
Foster: Medical Record, 1913, LXXXIV, 1163-1165.
Moynihan: Abdominal operations, 1914, Vol. II.
Knott: Journal A. M. A., 1914, LXII, 1004-1006.
Cuff: Lancet, 1908, 361-367.
Beatson: Glascow Medical Journal, 1909, LXXI, 433-459.
Harbin: Medical Record, 1909, LXXX, 54-56.
Murphy: Surgical Clinics, April, 1912, Vol. II.

NEURASTHENIA.*

JOHN BLAKE WHITE, M. D.,
Ormond, Fla.

Opinions vary greatly regarding the etiology of functional neuroses, and these disorders to a very great degree are somewhat uncertain and speculative.

Many definitions of neurasthenia have been advanced by those who have devoted themselves to the study of nervous disorders.

It would be interesting to allude to a few of the definitions of this interesting affection advanced by some well-known authors, and I am indebted to Dr. Austin F. Riggs, of Stockbridge, Mass., for a selection of some of the best-known authoritative views on this subject which were included in his most interesting and learned brochure on this subject.

M. A. Starr describes it "as a condition of exhaustion of the general nervous system, general or local," and refers to Edinger's belief in the cell-exhaustion theory with consequent selerotic degeneration.

In Hare's Therapeutics MacCarthy says: "Essential neurasthenia depends either on a congenitally inefficient nervous system, or upon abuse of the nervous system."

In Osler's System of Medicine Burr declares primary neurasthenia includes in its strictest sense only a condition of pathological weakness without any perceptible lesion, and Dana gives a definition of chronic functional nervous disorder expressed by a morbid weakness and more or less irritability of the nervous system.

White and Jelliffe describe the affection as a fatigue neurosis due to onanism which is a little too specific in my opinion, for I am sure I have seen neurasthenics in whom this etiological factor can have no association.

Church says "it may be due to continence," and, I think, with some logical basis.

Barker says "that neurasthenia and psychasthenic states are mild forms of mental disorder and are so-called functional nervous disturbances separable from organic," but declares that this is an arbitrary classification and should not be regarded "as diseases *per se* so much as nervous and mental syndromes—abnormal mental attitudes and reactions." There may be, he says, material changes in the nerve cells, but too much emphasis is not to be attached to this view.

*Read before the Volusia County Medical Society, at Port Orange, March 15, 1917.

My own view of the subject would be that neurasthenia embraces a condition of the nervous system without a definite lesion, manifested by phenomena relating to morbid and abnormal nervous function, resulting in a physical asthenia due to general abnormal nerve function.

I find Riggs' idea of this condition from his long observation of many cases corroborates this view, inasmuch as he says his conclusions are that "Neurasthenia is not weakness nor exhaustion—neither a malady of the intestines, the heart, the stomach, nor a disorder dependent upon structural change of the nervous system; hence it cannot be cured solely by rest or any physical means." Therefore his conception of the affection, drawn from experience, is that "it is the mental disorder probably without organic structural change, characterized by emotional overtone, ego-centricity or more graphically by an ingrowing attention; by mental inefficiency, by consequently poor adjustment of the individual to his environment, and, lastly, by a great variety of disturbances of bodily functions, which item, in common with all the others, acts retroactively upon all of its fellows."

Therefore he places psychotherapy as first and most important in treatment.

For this reason I believe that these cases thrive better in sanitaria where the patient is removed from every possible contact with accustomed surroundings and is under the constant supervision and direction of the physician.

Through acceptance of this definition we observe a field rich with symptoms to be studied and combated.

When definite pathologic conditions become evident, the case passes from a pure primary neurasthenia to a secondary type which merits classification under some more permanent morbific conditions which demand our first attention in the treatment, and so lessen or remove the less serious nervous symptoms.

Riggs has seemed to me to have a very much more correct conception of what neurasthenia means when he refers to subvarieties most commonly observed as psychasthenic and hypochondriacal, and says that he bent all of his energies in trying to understand the personality and the needs of each patient, which appears to me to be the only rational way to benefit such cases.

Among the principal causes of this interesting malady may be mentioned shocks, losses, unhappiness and difficulties of either or both mental and physical association. Prolonged convalescence after surgical operations of greater or less importance and often the apprehension of conditions not necessarily present, will engender a morbid nervous depression most difficult to overcome.

Riggs very properly says that neurasthenics are rendered worse by too prolonged rest and some individuals are better served by systematic and judiciously directed physical exercise, serving as it does, the double purpose of restoring functions and useful diversion.

I have seen neurasthenia well marked in men who indulged in excess of venery as well as in those who have practiced celibacy and in women whose husbands have been inconsiderately frequent in their embraces; in both young and older women, married and unmarried, who have been subject to menstrual irregularities of purely functional origin and having no evident pathological connection therewith than explainable by a psychopathologic cause.

You will, therefore, see that the treatment commended by Riggs and others must be individual and personally directed. A few requiring more or less medication and some no other treatment than such psychic influence as may be exercised by a judicious physician, astute and skillful enough to practice it on his subject.

It is not possible in the very limited time at our disposal to enter into even a reasonably full discussion of the causes or the treatment of this affection which is so

replete with so great a variety of symptoms requiring such varied means of combating.

The personal element with regard to both the patient and the medical attendant cannot be too much emphasized when we talk about the treatment of such cases, and I find that it is not always best to carry out to the fullest degree in many cases what is called the "rest treatment."

Some neurasthenics do better when a regular course of exercise with moments of absolute rest and relaxation are recommended. I find such patients very much prefer to be under discipline and like to be directed what to do, when to do it and not have to think for themselves. The smallest amount of mental effort seems to overthrow their power of control and continues their nerve asthenia.

CANCER.*

F. F. Ferris, M. D.,

Apalachicola, Fla.

In presenting this paper for your consideration, it is with the hope that it will provoke discussion which will prove beneficial to all present.

Cancer is today the most destructive of all the diseases of adult life. Its actual mortality, not only in the United States but all over the civilized world, has been shown to be greater than that of any other cause of death, except the mortality of infancy and that of tuberculosis at all ages. Among adults its mortality is greater even than that of tuberculosis.

Cancer attacks its victims at the time when they are in the most productive period of life, at the time when others are dependent upon them, and when they can least be spared. Of those who have attained the age of 40, one in every 11—one man in every 14, one woman in every 8—dies of cancer.

This mortality for the most part is preventable. We believe that from three-fourths to four-fifths of the deaths from cancer, with the attendant suffering, could be prevented if all of the medical profession were imbued, as they soon will be, with the latest knowledge of the disease, and if all the laity were familiar, not with the dreadful symptoms of the disease in its latest stages, which need not be mentioned to them, but with the trifling danger signals which contain the warnings of its threatened onset in an individual: of its probable appearance in the future, if it is left unchecked.

For their own sakes every member of the laity should know what these danger signals are.

Cancer appears to be on the increase in every civilized country, according to Hoffman's report. He makes a statement that the mortality is highest between 50 and 70 degrees north latitude, and decreases as you go toward the equator. In other words, cancer is excessively common in the northern part of the temperate zone, moderately common in the middle portion and relatively rare in the torrid or semi-torrid zone.

The annual mortality in the United States is 80,000. Mayo takes exception to the statement that cancer is on the increase, because the increase of cancer has not concerned the skin and visible mucous membrane of the body, where if it had existed it could have been easily identified.

To assume that cancer has increased in frequency in internal organs without an increase in external or familiar situations is not logical.

Inasmuch as the average human life has been lengthened about 30 years since 1700, the number of people of cancerous age is increasing, and this of itself must naturally account for a great increase of the disease.

Savages are said not to have cancer to any great extent, but the exact facts are not well known. Medical missionaries agree that cancer does exist among the savage

*Read before the forty-fourth annual meeting of the Florida Medical Association, at Atlantic Beach, May 18, 19, 1917.

races, but the percentage of primitive people who live to the later period of life when cancer is frequent, is small. At best when the savage becomes afflicted with cancer, he is in evidence but a short time, because he has no opportunity to care for himself in such a manner as to prolong his existence as may his civilized brother.

The cause of cancer is unknown, but we do know that it is an abnormal growth.

There are three theories of cancer growth:

(1) Cohnheim's theory.

(2) The parasite theory which is that cancer is due to a parasite which directly affects the embryonic cells.

(3) The third theory argues that the tissues, when subjected to irritation, increase their activity to protect themselves from injury; that at first mature cells are brought up for defense, but finally failing in the attempt to heal the breach of continuity by mature cells, Nature brings up immature, undeveloped embryonic cells.

Whatever the cause may be, we do know that cancer never begins in a healthy spot, and that there are predisposing causes which are responsible for its existence. It is probable that cancer is not hereditary.

We have no proof that cancer is contagious, in that it is carried from one individual to another.

Among the predisposing causes may be mentioned abnormal preexisting conditions, age and occupation, abnormal preexisting condition of warts and moles which remain in this condition for a long time and finally become irritated and cancer develops.

Age. Cancer is essentially a disease of later life, and liable to come in tissues that show age. Of the 80,000 estimated deaths from this disease in our country at all ages during the year 1915, 84½ per cent occurred at the age of 45 years and over.

Occupation—that leads to chronic irritation may lead to cancer.

The term precancerous, while not strictly accurate, is applied to those lesions from which cancer may develop.

Irritation is one of the most important factors in causation of cancer that we have to consider.

Sites of local irritation may be divided into three general groups:

Congenital.

Traumatic.

Chronic Irritation.

Congenital or acquired neoplasms, such as warts, moles and benign tumors of various sorts, which may undergo malignancy.

Bloodgood, in recent years, in a series of remarkable papers on the cancer problem, points out that of 820 pathologically fully developed cancers of the skin and visible mucous membrance he was unable to find a single case with a well-taken history showing the absence of a previous defect which might be looked on as a precancerous lesion.

Traumatic. Coley calls attention to the influence of trauma, not only in the development of Sarcoma, which has long been an accepted fact, but that it is a strong factor in the production of carcinoma.

Any injury which fails to heal promptly should be investigated to determine, if possible, the cause of delay.

Chronic irritation—whether the result of mechanical, chemical or infectious agencies—is the most important of all those precancerous conditions with which we are acquainted, and it is undoubtedly the most potent influence in the development of the disease following congenital lesions and trauma.

What has been said of the influence of chronic irritation in man is equally true in lower animals.

In the human being it may be noted that cancer in any part of the body which is open to inspection may, in practically every instance, be shown to be preceded by a local lesion. For example—in China, where the head is partially or entirely shaved in public places, the razor used is ragged and dull. The continuous scraping of the scalp pro-

duces a form of irritation on which cancer frequently develops, and in those parts of China, the commonest forms of the disease.

Chinese men suffer from cancer of the posterior wall of the pharynx and upper esophagus due to their ordinary food of hot rice, which is thrown into the mouth with considerable force with the chopsticks.

Chinese women eat at the second table when the rice is cold and do not suffer from the disease.

In India the natives chew the betel nut, a rough nut wrapped in a leaf with certain condiments, which is held between the gum and cheek.

In Madras, India, more than 50 per cent of all cancers seen in the mouth are due to the betel nut.

In the same provinces both men and women use betel nut and both suffer equally with cancer of the mouth.

In other parts of the country the women avoid the practice and do not have the disease.

Cancer of the mouth in civilized countries has been remarkably reduced by good dentistry.

In former times it was common in connection with rough ragged teeth, and when seen now, usually has such origin.

Of cancers of the lip 85 per cent are in smokers, formerly to a considerable extent, clay-pipe smokers, which is perhaps due to the heat. Since clay pipes are no longer smoked, there has been a very marked reduction in the number of cases of cancer of the lip. The smoking habit will be found to be the cause of cancer of the lip, tongue and floor of the mouth, in the majority of cases. These are only a few examples.

In the human being it may be noted that cancer in any part of the body which is open to inspection, may practically, in every instance, be shown to be preceded by a local lesion.

Can our knowledge of the development of external cancer be applied to the problem of internal cancer?

Admitting that the mass of evidence as to the role of chronic irritation in its various forms is the most important factor in the parts of the body which are exposed to the eye, must we not conclude that cancer of the inner surface of the body depends on the same precancerous condition.

Cancer of the stomach forms nearly one-third of the cancers of civilized man. In 1913, of the 75,000 deaths from this disease, about 30,000 were deaths due to cancer of the stomach and liver, 12,000 from cancer of the uterus and other organs of generation, 7,500 from cancer of the breast, and 25,500 from cancer of other parts of the body.

Considering the great mortality of cancer of the stomach, is it not possible that there is something in the habits of civilized man, in the cooking or other preparation of his food, which produces the precancerous lesion?

Can the taking of exceedingly hot foods or very cold drinks have anything to do with the development of cancer of the stomach? Is it not a fact that we treat our stomachs worse than any other part of our bodies?

The prophylaxis and cure of cancer are all-important considerations with the patient.

The prevention of cancer is to a large degree possible. It means the prevention of all causes of chronic irritation and the relief of all such conditions when established. If such conditions cannot be quickly relieved the possibility of a precancerous lesion must be thought of.

This is the great opportunity. Small tumors — warts — moles, etc., that are becoming irritated, sores and abrasions which fail to heal, injuries which have not fully resolved, all such conditions should receive appropriate treatment, and then cancer will not develop.

Every woman, a short time after confinement, should be examined and if the cervix has been badly lacerated, it should be repaired.

Any irregular discharge in a woman past

35 is to be considered an alarming symptom and should be thoroughly investigated. Everything which has been said about lesions of this sort on the visible parts of the body, applies equally to concealed situations.

Persistent indigestion, with loss of weight, and change of color is always suspicious, and requires laboratory tests, examination with X-rays and possibly an exploratory incision.

Cancer is at first a local disease. It follows, therefore, that if the disease is thoroughly removed while it is still local, the patient gets well and stays well.

It spreads (1) by permeation that is directly, (2) by way of the lymphatics to a very great extent, (3) by way of the blood vessels to a smaller extent, (4) and in certain situations by grafting.

The prognosis of cancer, taken as a whole, is much better than is generally thought.

The cure of cancer at the present time is not a drug, not a serum, not a ray, not a miracle, but simply the education of the people as to the signs at its beginning, as to its first warning, which will lead to an immediate examination in the stage most favorable for a cure.

It is important, therefore, to know that the first warnings of cancer are not different from the diseases that may later be cancer, or that may never develop into cancer: that every one will be duly warned and in the great majority of cases, that warning will be in plenty of time for protection.

In educating the public, it is unnecessary to excite fear by presenting the gruesome, hopeless, agonizing side of cancer. This stage of cancer develops under ignorance, skepticism or procrastination because of an entirely needless fear of an operation.

The message to be given to everyone is simple and should only excite sufficient fear of a beginning of cancer to lead him to seek advice and proper treatment in that early stage in which the probability of a cure is often 100 per cent.

The message is so simple that most people will be disappointed when they learn how cancer is to be controlled. No miracle is needed, unless the education of millions at a time may be considered miraculous.

The chief hope for increasing the numbers of cures of cancer is early operation. Now people cannot be treated unless they seek advice. They require information (authentic information) on the earliest signs of the conditions which are, or might lead to cancer.

I give credit to the thoughts herein expressed to the master minds of our noted colleagues, Bainbridge, Bloodgood, Wm. Mayo, and to the American Society for the Control of Cancer.

PROPAGANDA FOR REFORM.

TOXICITY OF SALVARSAN AND NEOSALVARSAN.—Claude L. Shields, M. D., Salt Lake City, reports that out of the last twenty-three injections of neosalvarsan four cases exhibited severe poisoning and one resulted in death. He reports the experience of other physicians of severe toxic symptoms from the use of recent shipments of salvarsan and neosalvarsan. (*Jour. A. M. A.*, Jan. 6, 1917, p. 53.)

THE SEARCH FOR THE IDEAL ANTISEPTIC.—R. A. Lambert has followed the effect of the same chemical agent on bacteria and tissue cells growing together in vitro. He finds that the growth of tissue cells is more easily affected by potassium cyanide, phenol, tricresol, hydrogen peroxide and alcohol than was the growth of bacteria. Iodin stands out as the one chemical tested to which tissue cells were found more resistant than were staphylococci. A good growth of cells was seen after exposure to a 1 in 2,000 solution of iodin for an hour—a strength sufficient to sterilize the tissue completely in most instances. Lambert points out that the power of iodin to dissolve fibrin may be an objection to its use as an antiseptic wound dressing. (*Jour. A. M. A.*, Jan. 6, 1917, p. 40.)

The Journal of the Florida Medical Association

Owned and published by the Florida Medical Association.

Published monthly at St. Augustine and Jacksonville. Price, $1.00 per year; 15 cents per single number.
Contributions for publication in this journal, whether scientific papers or reports of County Secretaries, should be typewritten.
Address Journal of the Florida Medical Association, St. Augustine, Florida, or 334 St. James Building, Jacksonville, Fla., U. S. A.

EDITOR.
GRAHAM E. HENSON, M. D.....*Jacksonville*

ASSOCIATE EDITORS.
THOMAS TRUELSEN, M. D.....*Tampa*
J. K. SIMPSON, M. D.....*Jacksonville*

COLLABORATORS.
JOHN E. BOYD, M. D., Jacksonville.....*Surgery*
R. H. MCGINNIS, Jacksonville.....*Medicine*
GERRY R. HOLDEN, M. D., Jacksonville.....*Gynecology*
JAMES D. LOVE, M. D., Jacksonville.....*Pediatrics*
W. S. MANNING, M. D., F. A. C. S., Jacksonville....*Eye, Ear, Nose and Throat*
J. L. KIRBY-SMITH, M. D., Jacksonville...*Dermatology*
E. G. BIRGE, M. D., Jacksonvllle.....*Bacteriology and Pathology*
L. W. CUNNINGHAM, M. D., Jacksonville, *Roentgenology*

OFFICERS OF THE FLORIDA MEDICAL ASSOCIATION.
RALPH N. GREENE, M. D., President.....*Jacksonville*
H. C. DOZIER, M. D., First Vice-President.....*Ocala*
D. A. MCKINNON, M. D., Second Vice-President, *Marianna*
H. HANSON, M. D., Third Vice-President..*Jacksonville*
GRAHAM E. HENSON, M. D., Secretary-Treasurer, *Jacksonville*

EXECUTIVE COMMITTEE
F. F. FERRIS, M. D.....*Apalachicola*
W. E. ROSS, M. D.....*Jacksonville*
E. VAN HOOD, M. D.....*Ocala*

COUNCILLORS.
First District — Escambia, Santa Rosa and Walton Counties: J. Harris Pierpont, M. D., Pensacola, 1920
Second District—Franklin, Gadsden, Jefferson, Leon, Liberty and Waukulla Counties: F. F. Ferris, M. D., Apalachicola 1921
Third District—Columbia, Hamilton, Madison, Lafayette, Suwanee and Taylor Counties: W. C. White, M. D., Live Oak 1921
Fourth District—Duval, Clay, Nassau and St. Johns Counties: Gerry R. Holden, M. D., Jacksonville..1918
Fifth District—Citrus, Hernando, Lake, Marion and Sumter Counties: E. Van Hood, M. D., Ocala..1919
Sixth District—Hillsborough, Pasco and Pinellas Counties: Thomas Truelsen, M. D., Tampa.....1919
Seventh District—Brevard, Orange, Osceola, St. Lucie and Volusia Counties: David Forster, M. D., Hawks Park 1917
Eighth District—Alachua, Baker, Bradford, Levy and Putnam Counties: A. H. Freeman, M. D., Starke, 1920
Ninth District—Calhoun, Holmes, Jackson and Washington Counties: J. S. McGeachy, M. D., Chipley, 1918
Tenth District—DeSoto, Lee, Manatee and Polk Counties: R. L. Cline, M. D., Arcadia.....1920
Eleventh District—Dade, Monroe and Palm Beach Counteis: W. R. Warren, M. D., Key West...1921

COMMITTEE ON SCIENTIFIC WORK.
H. MASON SMITH, M. D.....Chattahoochee
JOHN S. HELMS, M. D.....Tampa
W. R. WARREN, M. D.....Key West

Next Meeting —— Tampa —— May, 1917

REGISTRATION AT THE ATLANTIC BEACH MEETING.

The following physicains registered at the Atlantic Beach meeting:

E. W. Warren, Palatka.
J. A. Simmons, Arcadia.
E. Van Hood, Ocala.
Graham E. Henson, Jacksonville.
John S. Helms, Tampa.
J. B. Wallace, Tampa.
W. P. Adamson, Tampa.
L. S. Oppenheimer, Tampa.
Henry C. Dozier, Ocala.
C. H. Ryalls, Dellwood.
J. E. Goethe, Palatka.
J. C. Wells, St. Andrews.
H. W. Wade, Dade City.
Mary Freeman, Perrine.
H. C. Babcock, Miami.
George B. Coon, Tampa.
John Reeve, DeLand.
George M. Floyd, Hawthorn.
J. G. DuPuis, Lemon City.
John E. Boyd, Jacksonville.
T. S. Anderson, Live Oak.
L. E. Parmley, Winter Haven.
M. M. Hannum, Eustis.
R. R. Kime, Lakeland.
George B. Glover, Monticello.
George O. Davis, Madison.
R. Y. H. Thomas, Jacksonville.
W. H. Cox, Brooksville.
F. J. Walter, Daytona.
John D. Peabody, St. Petersburg.
John MacDiarmid, DeLand.
C. D. Christ, Orlando.
A. H. Freeman, Starke.
Wm. R. Warren, Key West.
H. Gates, Bradentown.
James V. Freeman, Jacksonville.
C. P. Rogers, Jacksonville.
F. J. Waas, Jacksonville.
Stanley Erwin, Jacksonville.
W. C. Young, Cheifland.
Shaler O. Richardson, Jacksonville.
T. Z. Cason, Jacksonville.
C. L. Hyatt, Kissimmee.
Edward Jelks, Jacksonville.

B. F. Hodsdon, Miami.
Harry A. Peyton, Jacksonville.
R. F. Hotard, Winter Park.
J. L. Kirby-Smith, Jacksonville.
F. F. Ferris, Apalachicola.
E. M. Brevard, Tallahassee.
C. M. Ausley, Tallahassee.
L. W. Cunningham, Jacksonville.
H. L. Brillhart, Jacksonville.
W. W. MacDonell, Jacksonville.
C. J. Marshall, Oviedo.
M. B. Herlong, Jacksonville.
W. C. Chowning, New Smyrna.
H. K. Morrison, Leesburg.
Frederick Bowen, Jacksonville.
C. C. Bohannon, Daytona.
H. Mason Smith, Chattahoochee.
R. N. Greene, Jacksonville.
L. A. Greene, Greenville.
R. E. Wilhoyte, Lake Wales.
D. A. McKinnon, Marianna.
Z. V. Johnston, Milton.
J. H. Hodges, Gainesville.
Maurice E. Heck, St. Augustine.
H. H. Seelye, Atlantic Beach.
G. E. Beckman, Jacksonville.
J. W. Hodges, Jacksonville.
J. P. Tomlinson, Starke.
J. H. Pittman, Jacksonville.
Seale Harris, Birmingham, Ala.
A. R. Parrott, Jacksonville.
W. M. Davis, St. Petersburg.
C. M. Mitchell, Palatka.
J. H. Colson, Gainesville.
D. T. Smith, Gainesville.
William J. Buck, Gainesville.
E. C. Birge, Jacksonville.
Joseph Y. Porter, Key West.
C. H. Dobbs, Jacksonville.
Hiram Byrd, Princeton.
Louis Stinson, Jacksonville.
H. A. Mills, Jacksonville.
H. A. Ives, Jacksonville.
Henry Hanson, Jacksonville.
M. W. Seagears, St. Augustine.
John Porter, McKeesport, Pa.
Albert H. Wilkinson, Jacksonville.
W. G. McKay, Jacksonville.
A. C. McKenzie, Jacksonville.
F. L. Watkin, Jacksonville.
L. G. Haskell, Jacksonville.

WHAT IS THE SECURITY FOR A LIBERTY LOAN BOND?

The faith and honor of the United States, backed by all of the resources of the Nation and the American people. A Liberty Loan Bond is a mortgage on all the resources and taxing powers of the Government and all of the resources of the American people.

WHAT ARE THE TERMS OF A LIBERTY LOAN BOND?

Liberty Loan Bonds of the first issue of $2,000,000,000 are to bear date of June 15, 1917, and to run for thirty years, except that the Government reserves the right to pay them fifteen years after date. If this right is not exercised by the Government fifteen years from date, the bonds will run the full thirty years.

These bonds bear interest at 3½ per cent per annum, and the interest is payable semi-annually on the fifteenth day of December and the fifteenth day of June in each year.

WHAT SPECIAL ADVANTAGES HAVE THESE LIBERTY LOAN BONDS?

One especial advantage no other bonds, National, State, municipal, or corporate, have is that if the United States during the continuance of this war shall issue other bonds at a higher rate of interest, the holders of these Liberty bonds have the right to exchange their Liberty bonds for bonds bearing the higher rate of interest, dollar for dollar.

THE MOBILIZATION OF THE MEDICAL PROFESSION.

The development of modern medicine and surgery has established the importance, in

any military activties on a large scale, of a competent and adequate staff of medical officers. Present-day surgery, hygiene and sanitation have adequately demonstrated their immediate and practical value in the handling of large bodies of troops. The mobilization of the physical forces of the nation now going on concerns the medical profession directly and offers to it an opportunity greater than any it has heretofore had in our national history. Physicians are needed for this most important and valuable service. In a nation like ours, based essentially on peaceful occupations rather than on militarism, reliance must always necessarily be placed on volunteers, drawn from the ranks of civil life, rather than from a special class trained to military service. No duty which confronts the medical profession today is more important than that of supplying, from the ranks of the American medical profession, such medical skill and service, both in quality and quantity, as the present need may require. Discussion of various phases of medical preparedness has been going on for many months past. It is gratifying to know that whatever may be the needs of the future, our country is probably today better prepared to meet any medical emergencies which may arise than at any previous time in its history. Various activities in this direction have from time to time been recorded and commented on in *The Journal*. One of the most important problems is the instruction of civilian physicians in the details of military hygiene and sanitation. On this subject, the Clinical Club of Albany, over a year ago, devised a plan which is worthy of the careful consideration of groups of physicians desiring to prepare themselves for military service. The resolutions passed by the University of Michigan Medical School and the Alabama State Board of Health are efforts to solve the question of the increased demand for professional services which is bound to follow the diverting of large numbers of physicians from civilian to military work. The plan proposed by the Maryland State Committee on Medical Preparedness is an effort to minimize the practical difficulties which will confront the physician who is asked to give up, for the time being, his private practice for public service. These various plans are worthy of the careful consideration of physicians, both as individuals and as members of medical organizations. The present situation calls for cool judgment and deliberate action in order that the medical profession may perform well its full duty.—*Journal of the American Medical Association,* April 14, 1917.

CHILDREN IN WAR TIME.

Thousands of children besides war orphans and refugees have been directly affected by the war, according to reports from belligerent countries which have come to the Children's Bureau of the United States Department of Labor. Juvenile delinquency has increased, more children have been employed under adverse conditions, special measures have been necessary to protect the health of mothers and babies, and home life has been broken up by the increased employment of mothers.

The Bureau believes that the experience of other countries should be carefully considered in order that all possible provision may be made to prevent similar harm to children in the United States. The Bureau has therefore begun a brief review of foreign experience, in so far as it can be understood from available reports, and will shortly publish a series of special articles about children in war time.

A preliminary survey of the foreign material emphasizes the importance of a strict enforcement of all child-labor and school-attendance laws and a generous development of infant-welfare work by public and private agencies. The Children's Bureau suggests that a well-planned Baby Week will be more valuable this year than ever before and will gladly send its bulletin of

directions for Baby-Week Campaigns to any address.

To those who are especially interested in working children, the Bureau's new report on the Employment-Certificate System in New York State will show certain points which are essential if an age limit for children's work is to be effective.

SAVING MOTHERS.

More women 15 to 45 years of age die from conditions connected with childbirth than from any disease except tuberculosis. About 15,000 deaths from maternal causes occur annually in the United States, and the available figures for this country show no decrease in the maternal death rate since 1900. Maternal deaths are largely preventable by proper care and skilled attendance.

These 15,000 deaths do not measure the full extent of the waste. They are merely a rough index of unmeasured preventable illness and suffering among mothers. Furthermore, certain diseases of early infancy are closely connected with the health of the baby's mother and the maternity care she has received, and these diseases cause about one-third of all the deaths occurring among babies under one year of age. More than 75,000 babies die each year from this group of diseases because they do not have a fair start in life.

The life and health of the mother are in every way important to the well-being of her children. Breast feeding through the greater part of the baby's first year is his chief protection from all diseases, and mothers are much more likely to be able to nurse their babies successfully if they receive proper care before, at, and after childbirth.

The expectant mother should at once consult a physician. She should remain under supervision so that any dangerous symptom may be discovered as soon as it appears. She should learn how to take care of herself, and she should have proper food and rest and freedom from anxiety. When the baby is born, the mother needs trained attendance. A difficult maternity case is one of the gravest surgical emergencies. Many people do not seem to understand that in any case complications may arise which can be met safely by prompt and skillful scientific care but which at the hands of an unskilled attendant may cost the life of mother or child or both. Even after confinement the mother needs continued supervision and rest until her strength has returned.

Thousands of mothers, both in city and country, do not have the essentials of safety, partly, perhaps chiefly, because they do not realize the dangers involved in lack of care or else accept the dangers as unavoidable. Many women are at present unable to obtain proper care but when all women and their husbands understand its importance and demand it for every mother, physicians will furnish it, medical colleges will provide better obstetrical training for physicians, and communities will see to it that mothers are properly protected.

Little has been done as yet to show women that much of the waste of mothers' lives and health is unnecessary. Even less has been undertaken by communities to provide protection for them. Many communities which have studied their typhoid and tuberculosis death rates and have undertaken costly measures to reduce them have been heedless of the death rates among mothers. It is not strange therefore that since 1900 the typhoid rate for the country as a whole has been cut in half, and the rate from tuberculosis has been markedly reduced, while the death rate from maternal causes has shown no demonstrable decrease.

Just how the importance of adequate maternity care is to be made plain to a community, and just how skilled care and instruction are to be made available for all mothers, are, of course, local questions to be considered by each community. The prenatal clinics and prenatal nursing which are being developed in many cities suggest a method of supervision and instruction which

might well be extended. Even in cities where such work is carried on and where good hospitals are numerous, the number of mothers reached is small in compared with the number who bear their children without adequate care.

Difficulties are perhaps greatest in rural districts where the sheer inaccesibility of a physician is often added to the other elements of the problem. Here a public nursing service with headquarters at the county seat, or other accessible town, would probably be the first step, placing at the service of every expectant mother a visiting nurse who is especially equipped to give her information about personal care and to watch for symptoms of trouble demanding medical advice. As such a nursing service develops, its headquarters might become, with the cooperation of physicians, a sort of maternal and child-welfare center to which not only expectant mothers but also mothers with babies could come for instruction, examination and advice. If no general hospital were conveniently near, a cottage hospital for mothers and babies might ultimately form a part of such a center.

A more general use of existing provisions for scientific maternity care and the extension of provisions for such care in all types of communities should serve to reduce the number of deaths among mothers and babies and to improve the health and general condition of children throughout the country. A full discussion of the causes and prevention of maternal deaths and an analysis of available statistics, are contained in a report on Maternity Mortality, published by the Children's Bureau.

The following Children's Bureau publications are of special interest in conection with work for the welfare of mothers and babies and may be obtained upon request from the Children's Bureau, Washington, D. C.:

Birth Registration: An aid in protecting the lives and rights of children, 20 pp., 3d ed., 1914. Bureau publication No. 2. Tells why every birth ought to be registered with local authorities.

Prenatal Care, by Mrs. Max West. 41 pp., 4th ed., 1915. Bureau publication No. 4. Describes the care a mother should have before her baby comes.

New Zealand Society for the Health of Women and Children: An example of methods of baby-saving work in small towns and rural districts. 18 pp., 1914. Bureau publication No. 6.

Infant Care, by Mrs. Max West. 87 pp., 1914. Bureau publication No. 8. Tells a mother how to take care of her baby through the first two years.

Infant Mortality: Results of a field study in Johnstown, Pa., based on births in one calendar year, by Emma Duke. 93 pp. and 9 pp. illustrated, 1915. Bureau publication No. 9.

Infant Mortality, Montclair, N. J.: A study of infant mortality in a suburban community. 36 pp., 1915. Bureau publication No. 11.

Infant Mortality: Results of a field study in Manchester, N. H., based on births in one year, by Beatrice Sheets Duncan and Emma Duke. Bureau publication No. 20. (In press.)

The Johnstown, Montclair, and Manchester reports show something of the home and community conditions which endanger babies' lives.

Baby-Week Campaigns (Revised edition): 144 pp. and 15 pp. illustrated, 1917. Bureau publication No. 15. Tells how a week (or a day) may be used to show a community what it ought to do for its babies and mothers.

A Tabular Statement of Infant-Welfare Work by Public and Private Agencies in the United States, by Etta R. Goodwin, 114 pp., 1916. Bureau publication No. 16. List of infant-welfare agencies and their activities in cities having a population of 10,000 or over

Maternal Mortality from all Conditions Connected with Childbirth in the United States and Certain Other Countries, by Grace L. Meigs, M. D., 66 pp., 1917. Bureau publication No. 19. Discusses causes and prevention of deaths in childbirth and reviews available statistics.

How to Conduct a Children's Health Conference, by Frances Sage Bradley, M. D., and Florence Brown Sherbon, M. D. Bureau publication No. 23. (In press.)

THE WAR AND MEDICAL RESEARCH.

"Who is going to care about a streptococcus six months from now?" said a well-known pathologist. War is declared; men's minds are on preparedness, on the food supply, on soldiers and on the wounded. Attention has shifted from the ordinary problems of life to the great topic. And so, too, the attention of research workers will shift from those phases of medical research which concern the cultural characteristics of micro-organisms, the intricate anatomy of the lower forms of life, the molecular arrangement of unknown minor constituents of the urine, to the broad problem of putting

as many men as possible at the front, keeping them there and getting them back again as quickly as possible when the exigencies of war cause their temporary removal to the hospital. Research abroad is now concerned with the effects of shrapnel on the body, with the ability to inoculate the soldier against the many epidemic diseases that confront him, with the control of tetanus and with the control of tuberculosis, which is extensive among the soldiers of France. Whole wards are filled with patients suffering from nephritis; with cases of insufficiency of the heart attributed to the terrible strain of forced marches; entire hospitals are devoted to soldiers suffering from shell shock; to wounds of the brain or similar war injuries. The individual is lost in the mass. And thus the focus of medical research shifts in war time. Laboratory and research workers leave their laboratories to devote themselves to problems which concern not the disabilities of individual men, but the disabilities of groups of thousands of men. —*Journal of the American Medical Association,* April 21, 1917.

THE MORE RECENT GRADUATES DESIRED.

According to news from Washington, the quota necessary to fill the present vacanies and requirements of the Army Medical Corps will be drawn from among those who graduated in 1912 to 1916. The total number that would be included in such a list would be approximately 19,000. The list of graduates in the five years mentioned, and also for 1917, is as follows:

MEDICAL COLLEGE GRADUATES.

	From Colleges in Class			
	A	B	C	Totals
1912	2,790	1,063	629	4,482
1913	2,539	1,050	392	3,981
1914	2,626	686	282	3,594
1915	2,629	688	219	3,536
1916	2,630	695	193	3,518
1917*	2,641	625	101	3,367
Totals	15,855	4,807	1,816	22,478

*Seniors.

As stated last week, there is an immediate need of additional physicians for the Medical Corps of the Army, and for the Medical Corps of the Navy. For these positions preference will be given to young physicians. The Army Medical Corps insists on a year's internship in a hospital after graduation; the Navy, however, is not now insisting on this, but is recognizing 1917 graduates. The young man who takes any of the positions now open is availing himself of a great opportunity for life work. The Army and Navy medical services offer a chance for a broad general training, an opportunity to do research in time of peace and, perhaps, of early promotion as never existed before.—*Journal of the American Medical Association,* April 14, 1917.

BASE HOSPITALS FOR THE ARMY.

In the news columns is an account of the progress which has been made in the organization of base hospitals under the direction of the American Red Cross. Several points are worthy of mention in connection with this movement. The first is that for over a year the details of this movement have been going on quietly and without excitement or hysteria. When it is considered that thirty-four hospitals have been organized and twenty-three of them completely equipped, that this involves the selecting, enrolling and training of over 800 physicians and surgeons and the selecting of a total personnel of nearly 7,000 persons, it will be realized that the medical profession has for some time been doing its share in the national preparedness movement. The function of these base hospitals should be clearly understood. They are not intended for operation in the cities in which they are organized, but are mobile units which can be sent on short notice to any desired location. They are not intended for operation in the field in close connection with troops or near the firing line, but are designed to serve as base hospitals receiving the

wounded from the field hospitals, as do the base hospitals in Europe. Probably fifty such units capable of caring for an aggregate of 25,000 sick and wounded soldiers can be completed with little difficulty. With such an equipment, in addition to the regular medical and surgical service in the army and navy and the various ambulance corps which are being organized, it is safe to say that the United States is today better prepared to care for the sick and wounded in any possible war than it ever has been before in its history.

THE IMMEDIATE NEED OF YOUNG MEN FOR THE REGULAR MEDICAL CORPS.

The Medical Corps of the Army is in immediate need of and is appealing urgently for young ambitious physicians to fill positions that have long been regarded as desirable, but which have heretofore been difficult to obtain, namely, membership in the Medical Corps of the Army. The position is one of honor, it is permanent, and commands a good remuneration. It offers opportunity for those who are ambitious to make famous names for themselves. Not a little of the progress made in medicine has been the result of work by medical men of the army. There is opportunity for laboratory research and for scientific, clinical investigation. The act of June 3, 1916, provided for increasing the standing army to 293,000 men, an increase of 161,000 men. This calls for a proportionate increase in the number of medical officers. After the full quota of the army is reached, 2,051 medical officers will be required. Including those in the Army Medical School and those who have offered their services and who have been accepted subject to examination, 685 medical officers are available. This leaves 1,366 additional medical officers necessary to be appointed by the time the new regular army is fully manned. How soon this will be is not known. It is dependent on how soon Congress will make the necessary appropriation and also on whether Congress will repend on the volunteer system or will adopt selective conscription to obtain the men. But no matter whether two months or six months elapse before the quota of 293,000 men is secured, there must be 2,051 medical officers ready to serve. The Surgeon General of the army is appealing for these men now. He wants them now so that they may receive the necessary training and be ready just as soon as the new regular army is ready. *The Journal* adds its appeal to that of the Surgeon General. Young physicians who are qualified and who consider entering into military medical work should act at once. An application blank appeared in *The Journal* last week. Fill it out and forward it immediately to the Surgeon General of the Army. Graduates of good medical schools under 32 years of age who are physically and mentally qualified will be thus rendering a service to their country, to medical science and to themselves.—*Journal American Medical Association,* April 28, 1917.

Resolution adopted by the Alachua County Medical Society, May 8, 1917:

WHEREAS, The Supreme Ruler of the Universe has seen fit to remove from our midst our co-worker, Dr. J. M. Goode, of Williston, a valued brother practitioner and member of this Society, be it

Resolved, That we deeply deplore his untimely death and hereby express to his bereaved family our heartfelt sympathy. Be it further

Resolved, That this resolution be spread upon our minutes and a copy be sent to his widow, to the *Gainesville Daily Sun* and THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION.

J. H. HODGES,
J. H. COLSON,
Committee.

E. T. KEGEL, *Secretary.*

PUBLISHER'S NOTES

WHAT IS A LIBERTY LOAN BOND?

A Liberty Loan Bond is a solemn promise of the United States to pay at maturity the amount of the bond to the holder thereof, and to pay interest semiannually each year from the date of the issuance of the bond until it is fully and finally paid.

THE WHOLESOMENESS OF GELATINE.

Popular Dessert Dish Is Not Only Palatable But Also a Health Aid.

Gelatine is distinctly a modern food. In our grandmother's day the preparation of a gelatine dessert was a task requiring such a degree of skill, patience and effort that it was not frequently attempted. But today, when the many brands of commercial gelatine make its use simple and convenient so that it has become an every-day article of diet, the question of its dietetic value becomes of interest.

Gelatine is a wholesome article of diet because of a rather peculiar property. While it is not, as some suppose, a good substitute for albumen or protein foods, it has the faculty of saving albumen in the body from destruction. It dissolves more easily than albumen and acts as a guard between albumen and the body fluids which would destroy it. It thus saves albumen to the body, which is equivalent to supplying new albumen.

In addition to this indirect nutritive value, gelatine provides a most valuable means for conveying other kinds of nourishment in an appetizing and easily digested form. This is well illustrated in the case of persons who cannot assimilate ordinary milk readily, but the moment gelatine is added find it easily digestible. Gelatine is used today in many ways not ordinarily supposed. It is used in French soups, in the preparation of cold bouillon and consomme, in jellies, jams, candy, ice cream, as well as the well-known dessert preparations. It is also used extensively in many dishes for the sick and convalescing. In every case the use of gelatine may be said to increase the value of the dish. In the jelly powders of commerce an incidental pure-food problem arises in the matter of flavoring materials. The fruit flavorings that are mixed in powdered form with the powder are sometimes not made from the actual fruit juices, but are synthetic and subject to some of the criticisms that have been made of synthetic flavorings used at soda fountains.

Probably the only manufacturer who has entirely overcome the flavoring difficulties is Otis E. Glidden, for seventeen years the leading expert in gelatine desserts, and now general manager of the Waukesha Pure Food Company, makers of the new Jiffy-Jell. He has put all his years of experience into this dessert and in addition to guaranteeing an ultra-superior grade of gelatine made by special processes in what is termed the model kitchen of the world, actual fruit flavors are furnished in liquid form, small glass vials of concentrated fruit juices being enclosed in the packets of gelatine. In the few months it has been on the market Jiffy-Jell is leading all older gelatines in sales.

The new plan has made possible the use of the finest fruits in obtaining fruit essences and has enabled the company to include in its list of flavorings, pineapple, which has never been properly made in powder form. The company also offers a hitherto novel gelatine flavor in mint, which is proving highly popular for serving as a garnish or relish with meats and other entrees, or in making salads.

Gelatine with these actual fruit and mint flavors especially recommends itself for desserts, salads and garnishes for early spring, when fresh fruits and herbs are scarce, not always fresh, and high-priced.

A LIBERTY LOAN BOND IS A MORTGAGE ON THE UNITED STATES.